



NEUROSCIENCE RESEARCH SUPPORT

AT THE NATIONAL INSTITUTE OF CHILD HEALTH
AND HUMAN DEVELOPMENT (NICHD)

The National Institute of Child Health and Human Development (NICHD) is committed to supporting research in the neurosciences, particularly as they affect developing systems and rehabilitation. The NICHD spends approximately 25 percent of its research funds on basic, clinical, and/or behavioral research in this arena. Within this context, the Institute has primary responsibility for projects relating to maternal and child health and human development, reproduction, developmental biology, clinical nutrition, perinatal and infant morbidity and mortality, mental retardation and developmental disabilities, pediatric and maternal HIV/AIDS, and medical rehabilitation.

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National Institutes of Health*

NEUROSCIENCE RESEARCH SUPPORT AT THE NICHD

DEVELOPMENTAL BIOLOGY, GENETICS, & TERATOLOGY (DGBT) BRANCH

- ◆ Normal/abnormal development of central/peripheral nervous systems
- ◆ Neurogenesis, synapse formation, differentiation, guidance, cell migration, role of growth factors and other molecules in neural development
- ◆ Neural tube formation/defects
- ◆ Neurodevelopmental teratogens
- ◆ Mechanisms underlying neural development
- ◆ Multi-disciplinary approaches include animal models, genetics, molecular biology, cell biology

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URL: <http://www.nichd.nih.gov/crmc/dbgt/>

ENDOCRINOLOGY, NUTRITION, & GROWTH (ENG) BRANCH

- ◆ Nutritional effects on brain development
- ◆ Neurotropic growth factors in neuronal function, connectivity, and overall brain development
- ◆ Neuroendocrinology
- ◆ Sexual dimorphism of the nervous system
- ◆ Innervation of endocrine organs

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REPRODUCTIVE SCIENCES (RS) BRANCH

- ◆ Neuroendocrine control of reproduction, including cellular and molecular brain mechanisms that govern ovulation and gametogenesis
- ◆ Genetics of reproductive neuroendocrine diseases and disorders
- ◆ Neural basis of reproductive behavior, sexual function, and sex differentiation
- ◆ Neuro-immune-endocrine axis in fertility regulation
- ◆ Photoperiod, circadian rhythms, and appetite effects on reproduction
- ◆ Basic and clinical approaches, including include the development of animal models through genetic engineering, cell/tissue culture, imaging techniques, tissue transplantation

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NATIONAL CENTER FOR MEDICAL REHABILITATION RESEARCH (NCMRR)

- ◆ Pathophysiology and management of chronically injured nervous and musculoskeletal systems (including stroke, traumatic brain injury, spinal cord injury, and orthopedic conditions)
- ◆ Repair and recovery of motor and cognitive function, functional plasticity and adaptation, and windows of opportunity for rehabilitative interventions
- ◆ Rehabilitative strategies involving pharmaceutical approaches, exercise, motor training, and behavioral modifications
- ◆ Pediatric critical care and rehabilitation
- ◆ Secondary conditions associated with chronic disabilities
- ◆ Improved diagnosis, assessment, and outcome measures
- ◆ Development of orthotics, prosthetics, and other assistive technologies

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URL: <http://www.nichd.nih.gov/about/ncmrr>

PREGNANCY & PERINATOLOGY (PP) BRANCH

- ◆ Management of maternal neurologic and mental health disorders and their affects on pregnancy and infant outcomes
- ◆ Placenta, uterine blood flow, and antenatal diagnosis, and their effects on fetal neurologic well-being
- ◆ Neurochemical control of labor, and the fetal neuroendocrine system
- ◆ Pathogenesis and prevention of sequelae of preterm birth, intrauterine growth retardation, term newborn asphyxia, transplacental effects of toxicants
- ◆ Tools to assess fetal, neonatal, and infant neurologic/behavioral maturity
- ◆ Disorders of the newborn that can result in neurologic sequelae, including adaptation to extrauterine life, hyperbilirubinemia, asphyxia, respiratory disorders, metabolic disorders, anemia, and infection
- ◆ Assessing the effect of intensive care environment and caregiving practices on growth and maturation of the brain, and special sensory apparatus
- ◆ Development and regulation of infant cardiorespiratory control and sleep states; neurologic deficits in sudden infant death syndrome (SIDS)

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MENTAL RETARDATION & DEVELOPMENTAL DISABILITIES (MRDD) BRANCH

- ◆ Etiology and pathophysiology of abnormal nervous system development and function
- ◆ Screening, diagnosis, treatment, and management of MRDD
- ◆ Disorders, including Down, Fragile X, and Rett syndromes, autism, inborn errors of metabolism, self-injurious behavior, etc.
- ◆ Multi-disciplinary, integrative, and translational studies of gene-behavior relationships
- ◆ Approaches include genetics, (pharmaco)genomics, proteomics, molecular and cell biology, animal models, imaging, gene therapy, and behavioral interventions

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CHILD DEVELOPMENT & BEHAVIOR (CDB) BRANCH

- ◆ Basic, developmental, behavioral, and cognitive neuroscience in humans and animal models
- ◆ Neuroanatomical and neuroendocrine bases of behavior
- ◆ Developmental behavioral neurotoxicology
- ◆ Neural basis of language, cognition, learning, memory, sensory, motor, and perceptual development
- ◆ Screening, diagnosis, and treatment of disabilities affecting learning, including reading disability, and attention and language disorders
- ◆ Multi-disciplinary approaches, including behavioral and molecular genetics, behavioral and cognitive interventions, structural and functional neuroimaging, and electrophysiology

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TO LEARN MORE...



...About the NICHD's efforts in and support of neuroscience research, visit the NICHD Neuroscience Research Web site, at <http://www.nichd.nih.gov/neuroscience.cfm>.